

IN THE CLAIMS

1. (Currently Amended) A recording apparatus for recording ~~video~~ data acquired from a transport stream that includes a plurality of packetized ~~video data streams of a predefined format~~ programs, each of said plurality of packetized programs having packet identification information, said recording apparatus comprising:

detection means for detecting at least one random-access point of each of said plurality of packetized ~~video data streams of said predefined format~~ programs;

analyzing means for obtaining an address of each of said random-access ~~points~~ point and for distinguishing packets having said random-access point in accordance with packet identification information included in said plurality of packetized ~~video data streams of said predefined format~~ programs;

data-base creation means for creating a data base including a ~~table of plurality of tables, each table having~~ addresses ~~of said random access point~~ for each of said packet identification information, whereby lists of random-access points in the ~~table~~ corresponding plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by the packet identification information; and

recording means for recording said data base separately from said ~~video~~ data on a recording medium.

2. (Currently Amended) The recording apparatus of claim 1, wherein said detection means detects said at least one random-access point according to a ~~video~~ sequence_header_code in each ~~data-stream-of-said-video-data~~ of said plurality of packetized programs.

3. (Currently Amended) The recording apparatus of claim 1, further comprising:

extraction means for extracting playback time information from each of said plurality of packetized ~~video-data-streams~~ programs; and

wherein said data-base creation means creates a data base of said playback time information and said packet identification information.

4. (Currently Amended) The recording apparatus of claim 1, wherein said analyzing means distinguishes said plurality of packetized programs from each other according to a program map table.

5. (Original) The recording apparatus of claim 1, wherein said data base creation means creates a data base for each of a plurality of video versions of a particular video program.

6. (Currently Amended) A method for recording ~~video~~ data acquired from a transport stream that includes a plurality of packetized ~~video data streams of a predefined format~~ programs, each of said plurality of packetized programs having packet identification information, said recording method comprising the steps of:

detecting at least one random-access point of each of said plurality of packetized ~~video data streams of said predetermined format~~ programs;

analyzing an address of each of said random-access ~~points~~ point and for distinguishing packets having said random-access point in accordance with packet identification information included in said plurality of packetized ~~video data streams of said predefined format~~ programs;

creating a data base including a ~~table of~~ plurality of tables, each table having addresses ~~of said random-access point~~ for each of said packet identification information, whereby lists of random-access points in the ~~table corresponding~~ plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by the packet identification information; and

recording said data base separately from said ~~video~~ data on a recording medium.

7. (Currently Amended) The recording method of claim 6, wherein said at least one random-access point is detected according to a ~~video~~ sequence_header_code in each ~~data stream of said video data~~ of said plurality of packetized programs.

8. (Currently Amended) The recording method of claim 6, further comprising the step of extracting playback time information from each of said plurality of packetized ~~video data streams~~ programs; and wherein said data-base further includes said playback time information.

9. (Currently Amended) The recording method of claim 6, wherein said plurality of packetized programs are analyzed according to a program map table.

10. (Original) The recording method of claim 6, wherein a data base is created for each of a plurality of video versions of a particular video program.

11. (Currently Amended) A reproducing apparatus for reproducing ~~video~~ data from a transport stream recorded on a recording medium, said transport stream comprising a plurality of packetized ~~video data streams of a predefined format~~ programs, each of said plurality of packetized programs having packet identification information, and a random-access information table including a ~~table of~~ plurality of tables, each table having addresses of ~~random-access points~~ for each of said packet identification information, stored on said recording medium corresponding to each of said plurality of ~~video~~ packetized programs ~~of said predefined format~~, whereby lists of random access points in the ~~table corresponding~~ plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by said packet identification information, said reproducing apparatus comprising:

reproducing means for reproducing from said recording medium ~~of a~~ said plurality of ~~said video~~ packetized programs ~~of said predefined format~~ and said corresponding random-access information table; and

control means for controlling, according to said random-access information table, an access point during a random-access playback operation of each of said plurality of packetized ~~data streams~~ programs.

12. (Currently Amended) The reproducing apparatus of claim 11, further comprising:

selecting means for selecting one ~~or more~~ of said plurality of ~~video~~ packetized programs from video programs included in said ~~video~~ data.

13. (Currently Amended) The reproducing apparatus of claim 11, wherein said random-access information table is stored on said recording medium as a file separately from said ~~video~~ data.

14. (Previously Presented) The reproducing apparatus of claim 11, wherein said addresses are indicative of an address of said recording medium corresponding to said one or more random-access points.

15. (Previously Presented) The reproducing apparatus of claim 11, wherein said addresses include time stamp information indicative of a playback time corresponding to each of said random-access points.

16. (Previously Presented) The reproducing apparatus of claim 11, wherein said transport stream is defined by an MPEG standard.

17. (Previously Presented) The reproducing apparatus of claim 11, wherein addresses are formed for each of a plurality of versions of a video program.

18. (Currently Amended) A method for reproducing ~~video~~ data from a transport stream recorded on a recording medium, said transport stream comprising a plurality of packetized ~~video data streams of a predefined format~~ programs, each of said plurality of packetized programs having packet identification information, and a random-access information table including a table of plurality of tables, each table having addresses of ~~random-access points~~ for each of said packet identification information stored on said recording medium corresponding to each of a said plurality of video packetized programs of said predefined format, whereby lists of random-access points in the table corresponding plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by said packet identification information, said method for reproducing comprising the steps of:

reproducing from said recording medium ~~of a said plurality of said video~~ packetized programs of said predefined format and said corresponding random-access information table; and

controlling an access point during a random-access playback operation, according to said random-access information table.

19. (Currently Amended) The reproducing method of claim 18, further comprising the step of:

selecting one ~~or more~~ of said ~~video~~ plurality of packetized programs from video programs included in said ~~video~~ data.

20. (Currently Amended) The reproducing method of claim 18, wherein said random-access information table is stored on said recording medium as a file separately from said ~~video~~ data.

21. (Previously Presented) The reproducing method of claim 18, wherein said addresses are indicative of an address of said recording medium corresponding to said one or more random-access points.

22. (Previously Presented) The reproducing method of claim 18, wherein said addresses include time stamp information indicative of a playback time corresponding to each of said random-access points.

23. (Previously Presented) The reproducing method of claim 18, wherein said transport stream is defined by an MPEG standard.

24. (Previously Presented) The reproducing method of claim 18, further comprising the step of:

forming addresses for each of a plurality of versions of a video program.

25. (Currently Amended) A computer program stored in a memory operable to instruct a multipurpose computer to record ~~video~~ data acquired from a transport stream that includes a plurality of packetized ~~video data streams of a predefined format~~ programs, each of said plurality of packetized programs having packet identification information, said computer program stored in said memory comprising instructions of:

detecting at least one random-access point of each of said plurality of packetized ~~video data streams of said predetermined format~~ programs;

analyzing an address of each of said random-access ~~points~~ point and for distinguishing packets having said random-access point in accordance with packet identification information included in said plurality of packetized ~~video data streams of said predefined format~~ programs;

creating a data base including a ~~table of~~ plurality of tables, each table having addresses of said random-access point for each of said packet identification information, whereby lists of random-access points in the ~~table corresponding~~ plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by the packet identification information; and

recording said data base separately from said ~~video data~~ transport stream on a recording medium.

26. (Currently Amended) The computer program of claim 25, wherein said at least one random-access point is detected according to a ~~video~~ sequence_header_code in each ~~data stream of said video data~~ of said plurality of packetized programs.

27. (Currently Amended) The computer program of claim 25, further comprising the instruction of extracting playback time information from each of said a plurality of packetized ~~video data streams~~ programs,[[;]] and wherein said data-base further includes said playback time information.

28. (Currently Amended) The computer program of claim 25, wherein said plurality of packetized programs are analyzed according to a program map table.

29. (Original) The computer program of claim 25, wherein a data base is created for each of a plurality of video versions of a particular video program.

30. (Currently Amended) A recording medium ~~on which is recorded by a multipurpose computer, and which may be read from by a multipurpose computer~~ recorded with software capable of being loaded by a computer, at least one video program transport stream formed of ~~video data~~ comprised of a plurality of packetized ~~video data streams of a predefined format~~ programs, each of said plurality of packetized programs having packet identification information, and a random-access information table including a ~~table of~~ plurality of tables, each table having addresses ~~of random access points~~ for each said packet identification information associated with each of said plurality of ~~video~~ packetized programs ~~of said predefined format~~, whereby lists of random access points in the ~~table corresponding~~ plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by said

packet identification information, said ~~recording medium being formed by a method~~ software loaded by the computer implementing a method comprising the steps of:

detecting at least one random-access point of each of said plurality of packetized ~~video data streams of said predetermined format~~ programs;

analyzing an address of each of said random-access ~~points~~ point and for distinguishing packets having said random-access point in accordance with packet identification information included in said plurality of packetized ~~video data streams of said predefined format~~ programs;

creating a data base including a ~~table of~~ plurality of tables, each table having addresses of said random-access ~~points~~ for each of said packet identification information, whereby lists of random-access points in the ~~table corresponding~~ plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by the packet identification information; and

recording said data base separately from said ~~video~~ data on said recording medium.

31. (Currently Amended) The recording medium of claim 30, wherein said at least one random-access point is detected according to a ~~video~~ sequence_header_code in each ~~data stream of said video data~~ of said plurality of packetized programs.

32. (Currently Amended) The recording medium of claim 30, further comprising extracting playback time information from ~~said one or more~~ each of said plurality of packetized video data streams programs,~~[[;]]~~ and wherein said data-base further includes said playback time information.

33. (Currently Amended) The recording medium of claim 30, wherein said plurality of packetized programs are analyzed according to a program map table.

34. (Original) The recording medium of claim 30, wherein a data base is created for each of a plurality of video versions of at least one of said video programs.

35. (Currently Amended) ~~Apparatus~~ An apparatus for recording on a recording medium ~~video~~ data acquired from a transport stream that includes a plurality of ~~multiplexed video~~ packetized programs of a predefined format, each of said plurality of packetized programs having packet identification information, said apparatus comprising:

- distinguishing means for distinguishing each of said plurality of ~~said video packetized programs of said predefined format~~;
- detecting means for detecting one or more random-access points of each of said plurality of ~~video packetized programs of said video data of said predefined format~~;
- analyzing means for obtaining an address of each of said random-access points ~~in said video data~~ and for distinguishing packets having said random-access ~~point~~ points in accordance with said packet identification information included in said ~~one or more video~~ plurality of packetized programs of said predefined format;

generating means for generating a ~~table of~~ plurality of tables, each table ~~having~~ addresses ~~of said random-access points~~ for each of said packet identification information, whereby lists of random-access points in the ~~table corresponding~~ plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by the packet identification information; and

recording means for recording said ~~video~~ data and said random-access information on said recording medium.

36. (Currently Amended) The apparatus of claim 35, further comprising means for generating a file that includes said random-access information table separately from a file that includes said ~~video~~ data.

37. (Currently Amended) The apparatus of claim 35, further comprising selecting means for selecting one ~~or more of said video~~ of said plurality of packetized programs from ~~said~~ video programs included in said ~~video~~ data for playback.

38. (Previously Presented) The apparatus of claim 35, wherein said address information includes address information indicative of an address on said recording medium corresponding to one of said random-access points.

39. (Previously Presented) The apparatus of claim 35, wherein said address information includes a time stamp indicative of a recording time corresponding to at least one of said random-access points.

40. (Previously Presented) The apparatus of claim 35, wherein said transport stream is defined by an MPEG standard.

41. (Currently Amended) The apparatus of claim 35, wherein said detecting means detects each of said random-access points according to a corresponding random-access indicator included in a header of each of said plurality of ~~video~~ packetized programs ~~making up said video data.~~

42. (Currently Amended) The apparatus of claim 41, wherein said distinguishing means distinguishes each of said ~~video~~ plurality of packetized programs according to said packet identification information included in said ~~video~~ data and according to a program map table included in said ~~video~~ data.

43. (Currently Amended) The apparatus of claim 35, wherein said distinguishing means further comprises version distinguishing means for distinguishing a plurality of versions of at least one of said plurality of ~~multiplexed-video~~ packetized programs from each other,[[;]] and wherein said generating means generates a random-access information for each said version.

44. (Currently Amended) A method for recording on a recording medium ~~video~~ data acquired from a transport stream that includes a plurality of ~~multiplexed video~~ packetized programs of a ~~predefined format~~, each of said plurality of packetized packets having packet identification information, said method comprising the steps of:

distinguishing each of said plurality of ~~said video~~ packetized programs of ~~said predefined format~~;

detecting one or more random-access points of each of said plurality ~~video~~ of packetized programs of ~~said predefined format of said video data~~;

analyzing an address of each of said random-access points ~~in said video~~ data and for distinguishing packets having said random-access ~~point~~ points in accordance with said packet identification information included in said ~~one or more video~~ plurality of packetized programs of ~~said predefined format~~;

generating a ~~table of~~ plurality of tables, each table having addresses of ~~said random-access points~~ for each of said packet identification information, whereby lists of random access points in the ~~table corresponding~~ plurality of tables correspond to different ~~packetized video data streams~~ programs that are distinguished from each other by the packet identification information; and

recording said ~~video~~ data and said random-access information on said recording medium.

45. (Currently Amended) The method of claim 44, further comprising the step of generating a file that includes said random-access information table separately from a file that includes said ~~video~~ data.

46. (Currently Amended) The method of claim 44, further comprising the step of selecting one ~~or more of said video~~ of said plurality of packetized programs from said video programs included in said ~~video~~ data for playback.

47. (Previously Presented) The method of claim 44, wherein said address information includes address information indicative of an address on said recording medium corresponding to one of said random-access points.

48. (Previously Presented) The method of claim 44, wherein said address information includes a time stamp indicative of a recording time corresponding to at least one of said random-access points.

49. (Previously Presented) The method of claim 44, wherein said transport stream is defined by an MPEG standard.

50. (Currently Amended) The method of claim 44, wherein each of said random-access points is detected according to a corresponding random-access indicator included in a header of each of said plurality of ~~video~~ packetized programs ~~comprising said video data~~.

51. (Currently Amended) The method of claim 50, wherein each of said ~~video~~ plurality of packetized programs is distinguished according to said packet identification information and according to a program map table included in said ~~video~~ data.

52. (Currently Amended) The method of claim 44, further comprising the steps of:

distinguishing a plurality of versions of ~~one of said multiplexed video~~ said plurality of packetized programs from each other; and

generating a random-access information for each said version.

53. (Currently Amended) A reproducing apparatus for reproducing ~~video~~ data from a transport stream recorded on a recording medium, said transport stream comprising a plurality of ~~multiplexed video~~ packetized programs ~~of a predefined format~~, each of said plurality of packetized programs having packet identification information, and a random-access information table including a ~~table of~~ plurality of tables, each table having addresses ~~of random-access points~~ for each of said packet identification information, wherein random-access information is recorded for each of said ~~video~~ plurality of packetized programs ~~of said predefined format~~, whereby lists of random-access points in the ~~table corresponding~~ plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by said packet identification information, said apparatus comprising:

reproducing means for reproducing from said recording medium ~~one or more of said video~~ of said plurality of packetized programs ~~of said predefined format~~ and said corresponding random-access information; and

control means for controlling, according to said random-access information, an access point during a random-access playback operation.

54. (Currently Amended) The reproducing apparatus of claim 53, further comprising:

selecting means for selecting one ~~or more~~ of said ~~video~~ plurality of packetized programs from ~~said~~ video programs included in said ~~video~~ data.

55. (Currently Amended) The reproducing apparatus of claim 53, wherein said random-access information is stored on said recording medium as a file separately from said ~~video~~ data.

56. (Previously Presented) The reproducing apparatus of claim 53, wherein said addresses are indicative of an address of said recording medium corresponding to one of said random-access points.

57. (Previously Presented) The reproducing apparatus of claim 53, wherein said addresses include a time stamp indicative of a recording time corresponding to each of said random-access points.

58. (Previously Presented) The reproducing apparatus of claim 53, wherein said transport stream is defined by an MPEG standard.

59. (Previously Presented) The reproducing apparatus of claim 53, wherein said addresses are formed for each of a plurality of versions of a video program.

60. (Currently Amended) A method for reproducing ~~video~~ data from a transport stream recorded on a recording medium, said transport stream comprising a plurality of ~~multiplexed video data~~ packetized programs of a predefined format, each of said plurality of packetized programs having packet identification information, and a random-access information table including a ~~table of~~ plurality of tables, each table having addresses of ~~random-access points~~ for each of said packet identification information, wherein random-access information is recorded for each of said ~~video~~ plurality of packetized programs, ~~of said predefined format~~ whereby lists of random-access points in the ~~table corresponding~~ plurality of tables correspond to different packetized ~~video data streams~~ programs that are distinguished from each other by said packet identification information, said method comprising the steps of:

reproducing one ~~or more of said video~~ of said plurality of packetized programs ~~of said predefined format~~ and said corresponding random-access information table ~~from said recording medium~~; and

controlling an access point during a random-access playback operation according to said random-access information.

61. (Currently Amended) The method of claim 60, further comprising the step of:

selecting one ~~or more of said video~~ of said plurality of packetized programs from ~~said video~~ programs included in said ~~video~~ data.

62. (Currently Amended) The method of claim 60, wherein said random-access information is stored on said recording medium as a file separately from said ~~video~~ data.

63. (Previously Presented) The method of claim 60, wherein said addresses are indicative of an address of said recording medium corresponding to one of said random-access points.

64. (Previously Presented) The method of claim 60, wherein said addresses include a time stamp indicative of a playback time corresponding to each of said random-access points.

65. (Previously Presented) The method of claim 60, wherein said transport stream is defined by an MPEG standard.

66. (Previously Presented) The method of claim 60, wherein said addresses are formed for each of a plurality of versions of a video program.

67. (Currently Amended) A recording medium ~~on which video data is stored by a multipurpose computer, and from which data may be read by a multipurpose computer,~~ recorded with software capable of being loaded by a computer, said medium having a region for storing data ~~video~~ from a transport stream including a plurality of ~~multiplexed video data~~ packetized programs of a predefined format, each of said plurality of packetized programs

having packet identification information[[]], and a region for storing random-access information including a ~~table of~~ plurality of tables, each table having addresses ~~of random-access points~~ for each of said packet identification information, wherein random-access information is associated with each of said plurality of ~~multiplexed-video~~ packetized programs ~~of said predefined format,~~ said software implementing a method comprising the steps:

~~whereby~~ distinguishing lists of random-access points in the ~~table~~ corresponding plurality of tables that correspond to different packetized ~~video data streams are~~ distinguished from each other programs by said packet identification information.

68. (Currently Amended) The recording medium of claim 67, wherein said random-access information is stored as a file separately from said ~~video~~ data.

69. (Previously Presented) The recording medium of claim 67, wherein said addresses are indicative of an address on said recording medium corresponding to one of said random-access points.

70. (Previously Presented) The recording medium of claim 67, wherein said addresses include a time stamp indicative of a playback time corresponding to at least one of said random-access points.

71. (Previously Presented) The recording medium of claim 67, wherein said transport stream is defined by an MPEG standard.

72. (Currently Amended) The recording medium of claim 67, wherein a random-access information table is formed for each of a plurality of versions of at least one of said plurality of ~~multiplexed-video~~ packetized programs.

73. (Currently Amended) A computer program stored in a memory operable to instruct a programmable processor to store ~~video~~ data to a recording medium having:

an instruction for storing ~~video~~ data from a transport stream including a plurality of ~~multiplexed-video-data~~ packetized programs ~~of a predefined format, each of said~~ plurality of packetized programs having packet identification information, into a first region of said recording medium; and

an instruction for storing to a second region of said recording medium random-access information including a ~~table of~~ plurality of tables, each table having addresses of ~~random-access points~~ for each of said packet identification information, wherein a random-access information is associated with each of said plurality of ~~multiplexed-video~~ packetized programs ~~of said predefined format,~~

whereby lists of random-access points in the ~~table corresponding~~ plurality of tables correspond to different packetized ~~video-data-streams~~ programs that are distinguished from each other by said packet identification information.

74. (Currently Amended) The computer program of claim 73, wherein said random-access information is stored on said recording medium as a file separately from said ~~video~~ data.

75. (Previously Presented) The computer program of claim 73, wherein said addresses are indicative of an address on said recording medium corresponding to one of said random-access points.

76. (Previously Presented) The computer program of claim 73, wherein said addresses include a time stamp indicative of a recording time corresponding to at least one of said random-access points.

77. (Previously Presented) The computer program of claim 73, wherein said transport stream is defined by an MPEG standard.

78. (Currently Amended) The computer program of claim 73, wherein a random-access information table is formed for each of a plurality of versions of at least one of said plurality of ~~video~~ packetized programs.